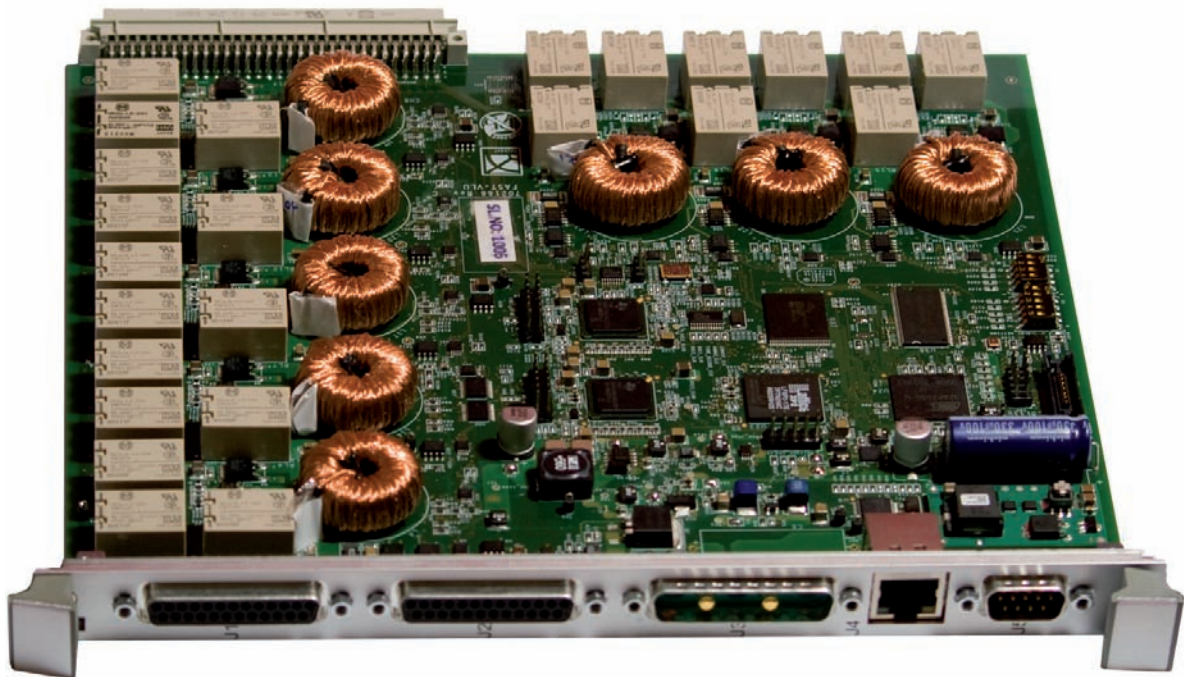


FAST-VLU8

Variable Load Unit – Ethernet Attached FAST Module



- 8 channel programmable current sink and source
- Current range from 200 mA to 6000 mA
- Voltage range up to 32 V operational
- High efficiency in sink and source mode
- Very low heat dissipation
- Current feedback into supply rail (2 Quadrant power supply or external load)
- Simulation routing on board for original equipment, unit under test, and isolation relay
- Calibration for current and voltage read back
- Internal frame-based I/O update rate down to 250 μ sec
- External frame-based host I/O update rate at msec resolution
- Decentralized data pre-processing (e.g. function generator, current ramp, filter, data logger)
- 5 kHz analog bandwidth



FAST-VLU8

Variable Load Unit – Ethernet Attached FAST Module

Application Scope

The FAST concept is a decentralized I/O subsystem. Many FAST modules are commanded by a single host and report to the single host. A set of different FAST modules will be available to provide different user interfaces, including FAST modules dedicated to DSIO, AIN, AOUT, VLU, and relays.

The FAST-VLU has a local communication CPU (AVR32 μ C) and dedicated circuitry to process input and output as well as timestamping.

The frame duration can be programmed by the host in the range of 250 μ sec to 1000 msec. A typical duration is 10 msec frame time.

The outputs are driven within the LRU by discrete switches to either ground (GND/OPN or Low Side Switch) or reference voltage (28V/OPN or High Side Switch). Some LRU outputs are controlled by a PWM stage. To guarantee stable conditions, the VLU PWM controller shall operate at frequencies greater than 300 kHz.

To test the avionics discrete outputs, a VLU shall act as a load to these outputs. The user shall select the reference level the VLU is connected to, thus sinking (GND) or sourcing (28 V) current.

To minimize heat dissipation, the power absorbed by the VLU in sink mode is distributed to the U_{ref} node.

Technical Data

Host Communication

- 10/100 MBit/sec Ethernet
- 250 μ sec to 1000 msec frame rate
- TCP/IP and UDP

Time Synchronization

- RS422 (3.3 V) compatible time reference input

Power

- 18 V to 32 V (nom. 28 V) input range
- 20 W (nom. 0.72 A) max. power consumption

Output

- 0 to 3000 mA \pm 0.2% continuous current
- 3000 to 6000 mA \pm 0.4% for 350 msec
- 20 to 500 kHz PWM frequency
- 0.5 to 95% regulation range
- \pm 6 mV voltage ripple at 100 mA and at 3000 mA / 28 V
- \pm 6 mA current ripple at 100 mA and at 3000 mA / 28 V
- \pm 24 mA current ripple at 6000 mA / 28 V
- Source U_{ref} or sink to GND

Input

- \pm 3 mA steady state current read back accuracy
- \pm 3 mV steady state voltage read back accuracy

Environmental Data

- Operating temperature: 0 $^{\circ}$ C - 40 $^{\circ}$ C
- Storage temperature: -40 $^{\circ}$ C - +85 $^{\circ}$ C
- Humidity: 5% to 90% rel. humidity non-condensing

Simulation Support Options

- Local CPU running Linux OS
- User-defined functionality, such as frequency filter, trigger level, function generator, or data logger, may be computed locally and send data to the host

FAST-VLU Versions

- FAST-VLU8 - 8 channel sink and source, OE, and UUT connector, internal (global) and external (channel specific) U_{ref}

Options

- Reserved for future options

Available Host Platforms

- All Ethernet attached platforms that support TCP/IP and UDP
- TechSAT supplied drivers for Windows, Linux, VxWorks, and QNX